UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,531	08/23/2003	Patrick B. Love	2270-9-3	8495

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PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER
CHAWAN, SHEELA C

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/646,531	LOVE ET AL.
	Examiner	Art Unit
	Sheela C. Chawan	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *23 August 2003*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-9,11-13,15-18,21-24,27- 28, 31-33,37-39 AND 41* is/are rejected.

7) ☒ Claim(s) *10,14,19,20,25,26,29,30,34-36 and 40* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *23 August 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on 2/17/04, the information

disclosure statement is being considered by the examiner.

Drawings

2.   The Examiner has approved drawings filed on 8/23/03.

Claim Objections

3.   Claim 4 is objected to because of the following informalities:

        In claim 4, line 2, recites, information that "is not plainly discernable ", it is

not clear. Please explain

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in
>
> public use or on sale in this country, more than one year prior to the date of application for patent in
>
> the United States.

        Claims 1- 9,11-13,15-16, are rejected under 35 U.S.C. 102(b) as being

anticipated by Gholizadeh et al., (US. 5,369,737), Listed in IDS filed on 2/17/04).

        As to claim to 1, Gholizadeh discloses a method for creating a searchable library

of classifications of image features, the method comprising:

receiving a digital image of a physical (column 1, lines 15-37) object (note,

producing an image of an object on a display device based on description of object by

representing a surface of the object as a plurality of polygons and producing each

polygon by generating display pixel having various intensity levels on the display,

vectors are predetermined at their vertices of polygon that define the position and

orientation of a portion of surface being represented by polygon, where each pixel (fig 1,

item 48) in arrangement has a value of more than one (column 2, lines 1-25) bit, column

3, lines 17- 25, 31-40, column 4, lines 12- 33, column 4, lines 18-24);

automatically generating a multi-dimensional surface model from the

received digital image of the physical object, and which differs from the received digital

image (note, generating multidimensional surface model based on lighting model to

determine the intensity levels based on display pixels which is generated on display

device to cause shaded image to visually resembles the object, lighting model is

evaluated based on vector for producing intensity signal that represents a shaded

intensity level for pixel as a result of evaluation, column 1, lines 27- 37);

providing an output that displays the generated multi-dimensional surface

model (note, generating multidimensional surface model based on lighting model to

determine the intensity levels based on display pixels which is generated on display

device to cause shaded image to visually resembles the object, lighting model is

evaluated based on vector for producing intensity signal that represents a shaded

intensity level for pixel as a result of evaluation, column 1, lines 27- 37);

manually analyzing the generated multi-dimensional surface model to determine

selected features of the received digital image (note, generating multi-dimensional

surface model based on display pixels and intensity level defined by intensity signals to

produce an image that is visually resembles the object (column 4, lines 16- 50, column

5, lines 3- 68);

classifying the determined features (note, computer graphics method for

producing a shaded image of an object having at least one curved surface on a display

device based on a description of the object by representing said curved surface as a

plurality of adjoining polygons and producing each polygon by generating display pixels

having various intensity levels on the display device in accordance with a lighting

model that takes into account a position and orientation of an imaginary light source

with respect to a position and orientation of said surface and also the host computer for

receiving and storing the description of curved surface as a plurality of adjoining

polygons each of which contains display pixels and has vectors at vertices thereof that

define the position and orientation of a portion of the curved surface being represented

by polygon, and generating data that describes each polygon data, including vector-

based terms from which intensity levels for the display pixels in polygon can be

derived, from vector-based (column 1, lines 15- 26);

storing the feature classifications (fig 1, 14 and 24 corresponds to memory for

storing the surface image data which is represented by a number of adjoining polygons,

such as triangles various coordinates of which are stored in display list memory 24,

column 3, lines 17- 25, 31- 40);

creating an algorithm for locating classified features in surface models of physical

objects based on the stored classifications (column 1, lines 38- 48, 60- 64, column 4,

lines 31- 41, column 5, lines 18- 5264- 68); and

storing the algorithm (fig 1, column 1, lines 38- 48, 60- 64, column 4, lines 31- 41,

column 5, lines 18- 5264- 68).

As to claim 2, Gholizadeh discloses the method of claim 1 wherein the received

digital image has eight bits of image intensity information (column 4, lines 18-24, fig 1,

48).

As to claim 3, Gholizadeh discloses the method of claim 1 wherein the received

image has more than eight bits of image intensity information (column 4, lines 18-24, fig

1, 48).

As to claim 4, Gholizadeh discloses the method of claim 1 wherein the generated

multi-dimensional surface model includes information that is not plainly discernable in

the received image (column 3, lines 31- 48).

As to claim 5, Gholizadeh discloses the method of claim 4 wherein intensity

transitions in the received image are represented in the generated surface model by

changes in color (column 4, lines 15- 56).

As to claim 6, Gholizadeh discloses the method of claim 4 wherein intensity

transitions in the received image are represented in the generated surface

model by changes in surface heights (column 4, lines 57- 68, column 5, lines 1- 2).

As to claim 7, Gholizadeh discloses the method of claim 1 wherein the analyzing

is done automatically (fig 1, column 3, lines 17- 30).

As to claim 8, Gholizadeh discloses the method of claim 7 wherein the analyzing is done by a learning algorithm (column 1, lines 38- 68).

As to claim 9, Gholizadeh discloses the method of claim 8 wherein the learning algorithm is a neural (column 1, lines 38- 68).

As to claim 11, Gholizadeh discloses the method of claim 1 wherein the classifying is done heuristically (column 3, lines 31- 48).

As to claim 12, Gholizadeh discloses the method of claim 1 wherein the classifying is done manually (column 3, lines 31- 48).

As to claim 13, Gholizadeh discloses the method of claim 1 wherein the feature classifications include temporal classifications (column 3, lines 31-48).

As to claim 15, Gholizadeh discloses the method of claim 1 wherein the algorithm includes rules for identifying features (column 1, lines 38- 68).

As to claim 16, discloses the method of claim 1 wherein the created classifications are associated with the received digital images (column 1, lines 38- 68).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-18,21-24, 27-28,32-33,37-39 and 41are rejected under 35 U.S.C. 103(a) as being unpatentable over Gholizadeh et al., (US. 5,369,737), as applied to the claims 1-9, 11-13,15-16 above and further in view of Shibuya (US. 5,497,429).

Regarding claim 17, Gholizadeh discloses normalization of vectors associated with display pixels of computer generated images. Gholizadeh is silent about classifications include

features relating to fingerprint analysis.

Shibuya discloses an apparatus for automatic fingerprint classification. The system comprises of:

wherein the created classifications (fig 7, fig 10 and fig 12) include features relating to fingerprint analysis (fig 1, element 17 is processor for classification, column 3, lines 7- 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gholizadeh to include classifications features relating to

fingerprint analysis. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Gholizadeh by the teaching of Shibuya in order to classified accordance with direction distribution of these straight line segments as suggested by Shibuya at (column 1, lines 26- 27).

As to claim 18, Shibuya discloses the method of claim 17 wherein the physical object is a fingerprint (fig 1, element 10 corresponds to fingerprint image).

As to claims 21, 22, 23 and 24, Shibuya discloses the method of claim 1 wherein the created classifications include features relating to oncology (note, oncology is study of cell and in this case it corresponds to fingerprint cell (fig 1, element 10 corresponds to fingerprint image).

As to claims 27 and 28, Shibuya discloses the method of claim 1 wherein the created classifications include features relating to geo-spatial mapping (column 2, lines 63- 67, fig 2, item 28 corresponds to mapping coordinates).

As to claim 31 see the rejection of claim 1 above.

As to claim 32 – 33, Gholizadeh discloses the method of claim 31 including storing the received image with associated classified features ((fig 1, element 17 is processor for classification, column 3, lines 7- 12).

As to claim 37, Gholizadeh discloses the method of claim 31 wherein the visual enhancement includes varying edges (column 2, lines 26-40, column 5, lines 17-38).

As to claim 38, Gholizadeh discloses the method of claim 31 wherein the visual enhancement includes varying surface heights (column 2, lines 26-40, column 5, lines 17-38).

As to claim 39, Gholizadeh discloses the method of claim 31 wherein the visual enhancement includes varying colors (column 4, lines 3- 50).

As to claim 41, see the rejection of claim 31.

Allowable Subject Matter

6.   Claims 10,14,19-20,25-26, 29-30, 34-36 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other prior art cited

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuckendahl (US.2002/0097896 A1) discloses device and method for scanning and mapping a surface.

Packer et al., (US.6,556,695 B1) discloses method for producing high resolution real-time images, of structure and function during medical procedures.

Askey et al., (2002/0164067 A1) discloses nearest neighbor edge selection from feature tracking.

Reed et al., (US. 6,249,600 B1) discloses system and method for generation of a three-dimensional solid model.

Maki et al., (US.6,072,903) discloses image processing apparatus and image processing method.

Levison et al., (US. 5,465,303) discloses automated fingerprint classification / identification system and method.

Kobayashi (US. 5,825,924) discloses method and apparatus for image processing.

Metaxas (US.6,295,464 B1) discloses apparatus and method for dynamic modeling of an object.

Summers et al., (US.6,345,112 B1) discloses method for segmenting medical images and detecting surface anomalies in anatomical structures.

Contact Information

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2624
Jan 30, 2007